

The Four Major Sources of Noise on Our Airplanes

- Exhaust
- Propeller
- Airframe
- Carburetor

How to compute Propeller Tip Mach numbers

Temperature	80	Degrees Fahrenheit	50
Prop Diameter	28	inches	28
Measure RPM on the Ground	6041	RPM	5870

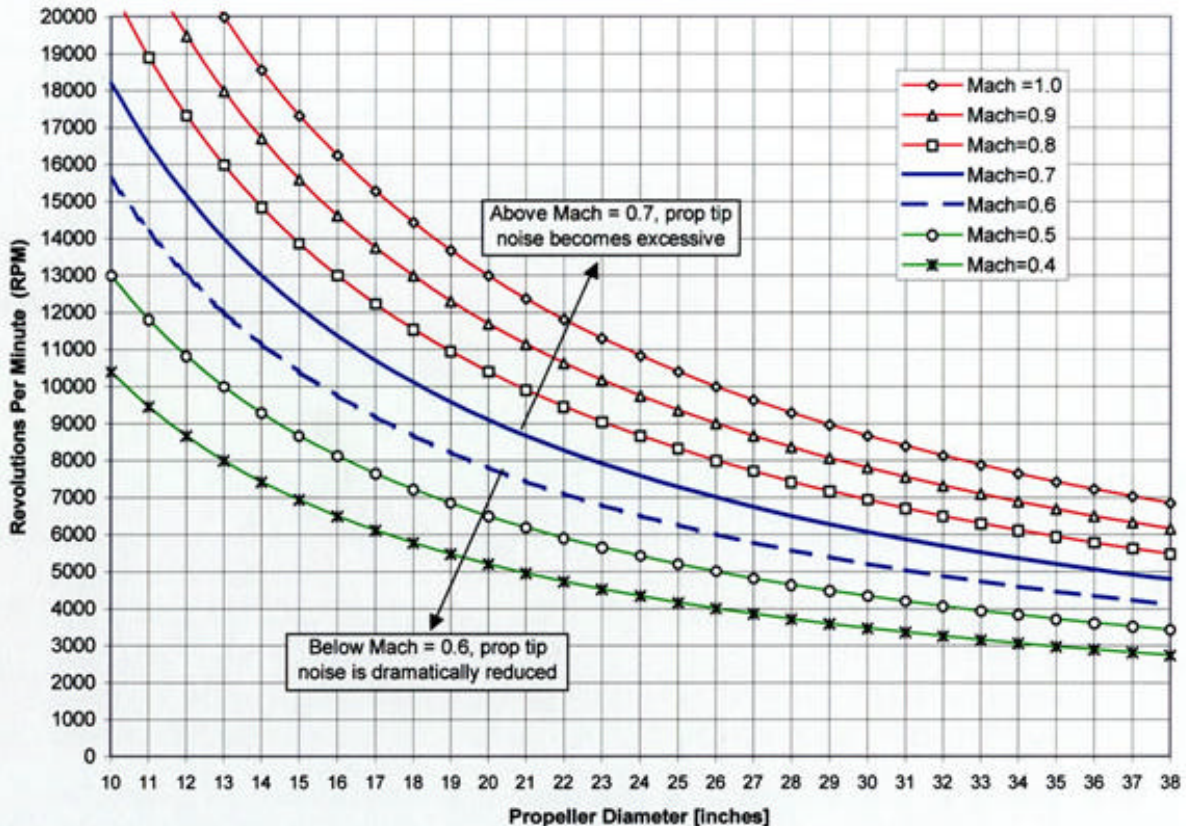
Tip Speed	797.09	ft/s	774.58
Speed of Sound	1138.64	ft/s	1106.54
Mach	0.700	Mach	0.700

Tip Speed = (((Prop_Diameter/2)/12)*(RPM_on_the_Ground*1.08)*2*3.1415926)/60

Speed of Sound = SQRT(1.4*1716*(Temperature+459.67))

Mach = Tip_Speed/Speed_of_Sound

Figure 1. Propeller Tip Mach Numbers (@ 75 degree F, ambient temperature)



Propeller Conversion Chart
2-Blade to n_Blade propellers
 (Note: for a given Pitch)

DiaN = ((2/N)X(Dia2)^5)^0.2			
Dia	3	4	5
8	7.4	7.0	6.7
9	8.3	7.8	7.5
10	9.2	8.7	8.3
11	10.1	9.6	9.2
12	11.1	10.4	10.0
13	12.0	11.3	10.8
14	12.9	12.2	11.7
15	13.8	13.1	12.5
16	14.8	13.9	13.3
17	15.7	14.8	14.2
18	16.6	15.7	15.0
19	17.5	16.5	15.8
20	18.4	17.4	16.7
21	19.4	18.3	17.5
22	20.3	19.2	18.3
23	21.2	20.0	19.1
24	22.1	20.9	20.0
25	23.1	21.8	20.8
26	24.0	22.6	21.6
27	24.9	23.5	22.5
28	25.8	24.4	23.3
29	26.7	25.2	24.1
30	27.7	26.1	25.0
31	28.6	27.0	25.8
32	29.5	27.9	26.6
33	30.4	28.7	27.5
34	31.4	29.6	28.3
35	32.3	30.5	29.1
36	33.2	31.3	30.0

Engine	Type	Diameter	Pitch	db	Source
Fox .46 ABC	2C	10	6	98.0	July 1995 RCR
Fox .46 ABC	2C	11	6	99.0	July 1995 RCR
Fox .46 ABC	2C	12	5	96.5	July 1995 RCR
K&B .48 ABC	2C	10	6	98.0	September 1999 RCR
K&B .48 ABC	2C	11	6	93.5	September 1999 RCR
K&B .48 ABC	2C	12	6	89.5	September 1999 RCR
K&B Sportster 45	2C	9	6	92.5	April 1998 RCR
K&B Sportster 45	2C	10	6	86.5	April 1998 RCR
K&B Sportster 45	2C	11	5	82.5	April 1998 RCR
K&B Sportster 45	2C	12	4	83.0	April 1998 RCR
Magnum XL .46A	2C	9	6	95.0	August 1996 RCR
Magnum XL .46A	2C	10	6	90.5	August 1996 RCR
Magnum XL .46A	2C	11	6	89.0	August 1996 RCR
OS .25 FP	2C	8	6	88.5	March 1998 RCR
OS .25 FP	2C	9	6	88.5	March 1998 RCR
OS .40 FX	2C	9	6	93.0	April 1999 RCR
OS .40 FX	2C	10	6	91.5	April 1999 RCR
OS .40 FX	2C	11	5	89.0	April 1999 RCR
OS .40LA	2C	9	6	88.5	October 1997 RCR
OS .40LA	2C	10	6	86.5	October 1997 RCR
OS .40LA	2C	11	5	86.0	October 1997 RCR
OS .40SF	2C	9	6	94.0	January 1995 RCR
OS .40SF	2C	10	6	91.5	January 1995 RCR
OS .40SF	2C	11	6	89.0	January 1995 RCR
OS .61 FX	2C	11	7	88.0	June 1998 RCR
OS .61 FX	2C	12	6	87.0	June 1998 RCR
OS .61 FX	2C	13	5	86.0	June 1998 RCR
OS .61 FX	2C	14	5	85.5	June 1998 RCR
OS FS-52S	4C	11	5	94.0	October 1996 RCR
OS FS-52S	4C	11	6	88.0	October 1996 RCR
OS FS-52S	4C	11	7	83.0	October 1996 RCR
OS FS-52S	4C	12	5	101.0	October 1996 RCR
OS FS-52S	4C	12	6	99.0	October 1996 RCR
OS FS-52S	4C	13	5	105.0	October 1996 RCR
OS FS-52S	4C	13	6	98.0	October 1996 RCR
Rossi .45 ABC	2C	10	6	94.5	July 1996 RCR
Rossi .45 ABC	2C	11	6	92.5	July 1996 RCR
Saito 100 Twin	4C	13	8	87.0	February 1995 RCR
Saito 100 Twin	4C	14	6	86.0	February 1995 RCR
Saito 170R3	4C	15	8	99.0	May 1998 RCR

Saito 170R3	4C	16	8	96.0	May 1998 RCR
Saito 182T	4C	15	8	100.0	May 1996 RCR
Saito 182T	4C	16	6	100.0	May 1996 RCR
Saito FA-120S GK	4C	14	8	97.0	Sept 1996 RCR
Saito FA-120S GK	4C	15	8	95.0	Sept 1996 RCR
Saito FA-120S GK	4C	16	8	93.0	Sept 1996 RCR
Saito FA-56	4C	11	7	90.0	July 1997 RCR
Saito FA-56	4C	12	6	89.5	July 1997 RCR
Saito FA-56	4C	13	5	88.5	July 1997 RCR
Saito FA-91s	4C	13	6	91.0	February 1998 RCR
Saito FA-91s	4C	14	6	88.5	February 1998 RCR
Saito FA-91s	4C	16	6	87.5	February 1998 RCR
ST G90	2C	12	6	99.0	May 1997 RCR
ST G90	2C	13	6	94.0	May 1997 RCR
ST G90	2C	14	6	88.0	May 1997 RCR
Thunder Tiger F91S	4C	13	6	88.5	March 1996 RCR
Thunder Tiger F91S	4C	14	6	87.5	March 1996 RCR
Thunder Tiger F91S	4C	15	6	86.0	March 1996 RCR
Thunder Tiger F91S	4C	16	6	85.0	March 1996 RCR
Zenoah G45	2C	18	10	99.5	February 1998 RCR
Zenoah G45	2C	20	10	97.5	February 1998 RCR
Zenoah G45	2C	22	10	95.0	February 1998 RCR
Zenoah G62	2C	20	10	98.5	October 1994 RCR
Zenoah G62	2C	22	10	95.5	October 1994 RCR
Zenoah G62	2C	24	10	94.0	October 1994 RCR